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IN THE CLAIMS:

Please consider the claims as follows:

1. (amended) An interleaver of optical channels, comprising:
 - an input Y-branch ~~coupler~~waveguide having a first output and a second output;
 - ~~a first phase shifter which input is coupled to the first output of the Y-branch coupler;~~
 - ~~a second phase shifter which input is coupled to the second output of the Y-branch coupler;~~
 - ~~a first multi-sectional coupler having:~~
 - ~~a first input coupled to an output of the first phase shifter;~~
 - ~~a second input coupled to an output of the second phase shifter;~~
 - ~~a first output coupled to an input of the third phase shifter; and~~
 - ~~a second output coupled to an input of the fourth phase shifter; and~~
 - ~~a second multi-sectional coupler having:~~
 - ~~a first input coupled to an output of the third phase shifter;~~
 - ~~a second input coupled to an output of the fourth phase shifter;~~
 - ~~a first output for a first group of the optical channels; and~~
 - ~~a second output for a second group of the optical channels~~
 - a first phase shifter, disposed between the first Y-branch waveguide output and a first input of a first multi-sectional coupler, the first multi-sectional coupler comprising at least two couplers connected in series;
 - a second phase shifter, disposed between the second Y-branch waveguide output and a second input of the first multi-sectional coupler;
 - a third phase shifter, disposed between a first output of the first multi-sectional coupler a first input of a second multi-sectional coupler, the second multi-sectional coupler comprising at least two couplers connected in series; and
 - a fourth phase shifter, disposed between a second output of the first multi-sectional coupler a second input of the second multi-sectional coupler; wherein

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a first output of the second multi-sectional coupler is associated with a first group of optical channels; and

a second output of the second multi-sectional coupler is associated with a second group of optical channels.

2. (cancelled)

3. (previously presented) The interleaver of claim 1, wherein each of said multi-section optical couplers comprises a chain including three optical couplers where adjacent couplers are coupled using waveguides each selectively providing a pre-determined phase shift.

4. (currently amended) The interleaver of claim 1, wherein the input Y-branch ~~coupler~~waveguide splits power of an input optical signal between a first output and a second output in a pre-determined ratio.

5-8. (cancelled)

9. (previously presented) The interleaver of claim 1, wherein said interleaver is an integrated planar lightwave circuit.

10-29. (cancelled)

30. (previously presented) The interleaver of claim 1, wherein each of said phase shifters is a controlled thermo-optic heater.

31. (previously presented) The interleaver of claim 3, wherein in the multi-sectional coupler:

one optical waveguide couples a first output of a first optical coupler to a first input of a second optical coupler;

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another optical waveguide couples a second output of a first optical coupler to a second input of a second optical coupler;

yet another optical waveguide couples a first output of a second optical coupler to a first input of a third optical coupler; and

still another optical waveguide couples a second output of a second optical coupler to a second input of a third optical coupler.

32. (previously presented) The interleaver of claim 3, wherein each of said optical couplers is selected from the group consisting of an evanescent coupler and an adiabatic coupler.

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IN THE CLAIMS:

Please consider the claims as follows:

1. (amended) An interleaver of optical channels, comprising:
 - an input Y-branch ~~coupler~~waveguide having a first output and a second output;
 - ~~a first phase shifter which input is coupled to the first output of the Y-branch coupler;~~
 - ~~a second phase shifter which input is coupled to the second output of the Y-branch coupler;~~
 - ~~a first multi-sectional coupler having:~~
 - ~~a first input coupled to an output of the first phase shifter;~~
 - ~~a second input coupled to an output of the second phase shifter;~~
 - ~~a first output coupled to an input of the third phase shifter; and~~
 - ~~a second output coupled to an input of the fourth phase shifter; and~~
 - ~~a second multi-sectional coupler having:~~
 - ~~a first input coupled to an output of the third phase shifter;~~
 - ~~a second input coupled to an output of the fourth phase shifter;~~
 - ~~a first output for a first group of the optical channels; and~~
 - ~~a second output for a second group of the optical channels~~
 - a first phase shifter, disposed between the first Y-branch waveguide output and a first input of a first multi-sectional coupler, the first multi-sectional coupler comprising at least two couplers connected in series;
 - a second phase shifter, disposed between the second Y-branch waveguide output and a second input of the first multi-sectional coupler;
 - a third phase shifter, disposed between a first output of the first multi-sectional coupler a first input of a second multi-sectional coupler, the second multi-sectional coupler comprising at least two couplers connected in series; and
 - a fourth phase shifter, disposed between a second output of the first multi-sectional coupler a second input of the second multi-sectional coupler; wherein

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a first output of the second multi-sectional coupler is associated with a first group of optical channels; and

a second output of the second multi-sectional coupler is associated with a second group of optical channels.

2. (cancelled)

3. (previously presented) The interleaver of claim 1, wherein each of said multi-section optical couplers comprises a chain including three optical couplers where adjacent couplers are coupled using waveguides each selectively providing a pre-determined phase shift.

4. (currently amended) The interleaver of claim 1, wherein the input Y-branch ~~coupler~~ waveguide splits power of an input optical signal between a first output and a second output in a pre-determined ratio.

5-8. (cancelled)

9. (previously presented) The interleaver of claim 1, wherein said interleaver is an integrated planar lightwave circuit.

10-29. (cancelled)

30. (previously presented) The interleaver of claim 1, wherein each of said phase shifters is a controlled thermooptic heater.

31. (previously presented) The interleaver of claim 3, wherein in the multi-sectional coupler:

one optical waveguide couples a first output of a first optical coupler to a first input of a second optical coupler;

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another optical waveguide couples a second output of a first optical coupler to a second input of a second optical coupler;

yet another optical waveguide couples a first output of a second optical coupler to a first input of a third optical coupler; and

still another optical waveguide couples a second output of a second optical coupler to a second input of a third optical coupler.

32. (previously presented) The interleaver of claim 3, wherein each of said optical couplers is selected from the group consisting of an evanescent coupler and an adiabatic coupler.